TCAP End of Course, Biology I
Criterion Referenced (CRT) Reporting Categories with State Performance Indicators

Inquiry, Technology & Engineering, Mathematics	
SPI #	**State Performance Indicator**
3210.T/E.1	Distinguish among tools and procedures best suited to conduct a specified scientific inquiry.
3210.T/E.2	Evaluate a protocol to determine the degree to which an engineering design process was successfully applied.
3210.T/E.3	Evaluate the overall benefit to cost ratio of a new technology.
3210.T/E.4	Use design principles to determine how a new technology will improve the quality of life for an intended audience.
3210.Math.1	Interpret a graph that depicts a biological phenomenon.
3210.Math.2	Predict the outcome of a cross between parents of known genotype.
3210 Inq.1	Select a description or scenario that reevaluates and/or extends a scientific finding.
3210 Inq.2	Analyze the components of a properly designed scientific investigation.
3210 Inq.3	Determine appropriate tools to gather precise and accurate data.
3210 Inq.4	Evaluate the accuracy and precision of data.
3210 Inq.5	Defend a conclusion based on scientific evidence.
3210 Inq.6	Determine why a conclusion is free of bias.
3210 Inq.7	Compare conclusions that offer different, but acceptable explanations for the same set of experimental data.

Cells	
SPI #	**State Performance Indicator**
3210.1.1	Identify the cellular organelles associated with major cell processes.
3210.1.2	Distinguish between prokaryotic and eukaryotic cells.
3210.1.3	Distinguish among proteins, carbohydrates, lipids, and nucleic acids.
3210.1.4	Identify positive tests for carbohydrates, lipids, and proteins.
3210.1.5	Identify how enzymes control chemical reactions in the body.
3210.1.6	Determine the relationship between cell growth and cell reproduction.
3210.1.7	Predict the movement of water and other molecules across selectively permeable membranes.
3210.1.8	Compare and contrast active and passive transport.

Interdependence	
SPI #	**State Performance Indicator**
3210.2.1	Predict how population changes of organisms at different trophic levels affect an ecosystem.
3210.2.2	Interpret the relationship between environmental factors and fluctuations in population size.
3210.2.3	Determine how the carrying capacity of an ecosystem is affected by interactions among organisms.
3210.2.4	Predict how various types of human activities affect the environment.
3210.2.5	Make inferences about how a specific environmental change can affect the amount of biodiversity.
3210.2.6	Predict how a specific environmental change may lead to the extinction of a particular species.
3210.2.7	Analyze factors responsible for the changes associated with biological succession.

Flow of Matter & Energy	
SPI #	**State Performance Indicator**
3210.3.1	Interpret a diagram that illustrates energy flow in an ecosystem.
3210.3.2	Distinguish between aerobic and anaerobic respiration.
3210.3.3	Compare and contrast photosynthesis and cellular respiration in terms of energy transformation.
3210.3.4	Predict how changes in a biogeochemical cycle can affect an ecosystem.

Heredity	
SPI #	**State Performance Indicator**
3210.4.1	Identify the structure and function of DNA.
3210.4.2	Associate the process of DNA replication with its biological significance.
3210.4.3	Recognize the interactions between DNA and RNA during protein synthesis.
3210.4.4	Determine the probability of a particular trait in an offspring based on the genotype of the parents and the particular mode of inheritance.
3210.4.5	Apply pedigree data to interpret various modes of genetic inheritance.
3210.4.6	Describe how meiosis is involved in the production of egg and sperm cells.

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3210.4.7	Describe how meiosis and sexual reproduction contribute to genetic variation in a population.
3210.4.8	Determine the relationship between mutations and human genetic disorders.
3210.4.9	Evaluate the scientific and ethical issues associated with gene technologies: genetic engineering, cloning, transgenic organism production, stem cell research, and DNA fingerprinting.
Biodiversity & Change	
SPI #	**State Performance Indicator**
3210.5.1	Compare and contrast the structural, functional, and behavioral adaptations of animals or plants found in different environments.
3210.5.2	Recognize the relationship between form and function in living things.
3210.5.3	Recognize the relationships among environmental change, genetic variation, natural selection, and the emergence of a new species.
3210.5.4	Describe the relationship between the amount of biodiversity and the ability of a population to adapt to a changing environment.
3210.5.5	Apply evidence from the fossil record, comparative anatomy, amino acid sequences, and DNA structure that support modern classification systems.
3210.5.6	Infer relatedness among different organisms using modern classification systems.